ELECTRONICS

6GH8-A

TRIODE-PENTODE

DESCRIPTION AND RATING

The 6GH8-A is a miniature tube which contains a sharp-cutoff pentode and a medium-mu triode. Each section has a separate cathode and is electrically independent. The pentode section is intended primarily for service as an oscillator in the horizontal-deflection system of television receivers.

Except for being controlled to assure low interelectrode leakage, the 6GH8-A is identical to the 6GH8.

GENERAL

ELECTRICAL

Cathode - Coated Unipotential

Heater Characteristics and Ratings

Heater Voltage, AC or DC*	6.3	Volts
Heater Current‡	0.45±0.03	Amperes
Heater Warm-up Time, average§	11	Seconds

Direct Interelectrode Capacitances

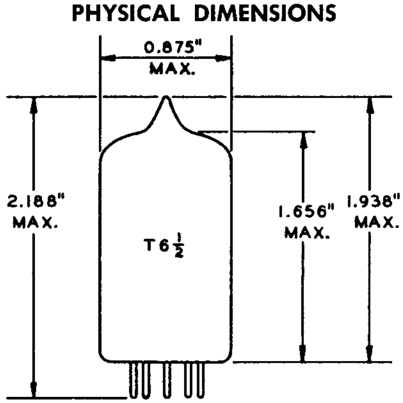
Pentode Section	**With Shield**	**Without Shield**	
Grid-Number 1 to Plate: (Pg1 to Pp), maximum	0.01¶	0.02	pf
Input: Pg1 to (h + k + Pg2 + Pg3 + i.s.)	5.0¶	5.0	pf
Output: Pp to (h + k + Pg2 + Pg3 + i.s.)	3.4¶	2.6	pf
Triode Section			
Grid to Plate: (Tg to Tp)	1.7#	1.7	pf
Input: Tg to (h + Tk + Pk + Pg3 + i.s.)	3.2#	3.0	pf
Output: Tp to (h + Tk + Pk + Pg3 + i.s.)	1.9#	1.4	pf
Heater to Cathode, Each SectionΔ	3.0	3.0	pf

MECHANICAL

Operating Position - Any
Envelope - T-6 1/2, Glass
Base - E9-1, Small Button 9-Pin
Outline Drawing - EIA 6-2

Maximum Diameter	0.875	Inches
Maximum Over-all Length	2.188	Inches
Maximum Seated Height	1.938	Inches

PHYSICAL DIMENSIONS

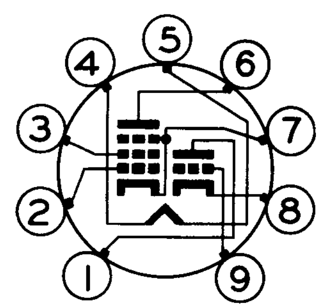


EIA 6-2

TERMINAL CONNECTIONS

Pin 1 - Triode Plate
Pin 2 - Pentode Grid Number 1
Pin 3 - Pentode Grid Number 2 (Screen)
Pin 4 - Heater
Pin 5 - Heater
Pin 6 - Pentode Plate
Pin 7 - Pentode Cathode, Grid Number 3, and Internal Shield
Pin 8 - Triode Cathode
Pin 9 - Griode Grid

BASING DIAGRAM



EIA 9AE

MAXIMUM RATINGS

DESIGN-MAXIMUM VALUES

	Pentode Section Horizontal Oscillator Service**	Triode Section	
DC Plate Voltage	350	330	Volts
Screen Supply Voltage	330	---	Volts
Screen Voltage - See Screen Rating Chart			
Positive DC Grid-Number 1 Voltage	0	0	Volts
Peak Negative DC Grid-Number 1 Voltage	175	---	Volts
Plate Dissipation	2.5	2.5	Watts
Screen Dissipation	0.55	---	Watts
DC Cathode Current	20	---	Milliamperes
Peak Cathode Current	300	---	Milliamperes
Heater-Cathode Voltage			
Heater Positive with Respect to Cathode			
DC Component	100	100	Volts
Total DC and Peak	200	200	Volts
Heater Negative with Respect to Cathode			
Total DC and Peak	200	200	Volts
Grid-Number 1 Circuit Resistance			
With Fixed Bias	2.2	2.2	Megohms
With Cathode Bias	2.2	2.2	Megohms

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

	Pentode Section	Triode Section	
Plate Voltage	125	125	Volts
Screen Voltage	125	---	Volts
Grid-Number 1 Voltage	-1.0	-1.0	Volts
Amplification Factor	---	46	
Plate Resistance, approximate	200000	5400	Ohms
Transconductance	7500	8500	Micromhos
Plate Current	12	13.5	Milliamperes
Screen Current	4.0	---	Milliamperes
Grid-Number 1 Voltage, approximate			
Ib = 10 Microamperes	-8.0	-8.0	Volts

NOTES

* Heater voltage for a bogey tube at If = 0.45 amperes.

‡ The equipment designer should design the equipment so that heater current is centered at the specified bogey value, with heater supply variations restricted to maintain heater current within the specified tolerance.

§ The time required for the voltage across the heater to reach 80 percent of the bogey value after applying 4 times the bogey heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the bogey heater voltage divided by the bogey heater current.

¶ With external shield (EIA 315) connected to pentode cathode.

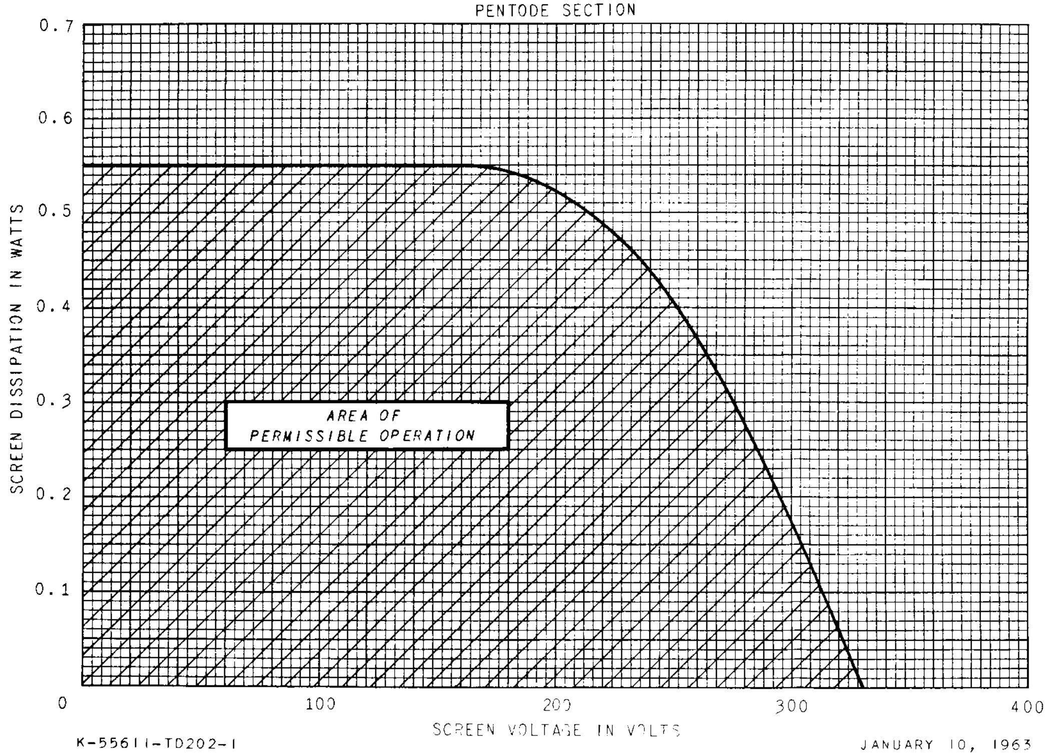
\# With external shield (EIA 315) connected to triode cathode.

Δ With external shield (EIA 315) connected to ground.

** For operation in a 525-line, 30-frame television system as described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations", Federal Communications Commission. The duty cycle of the voltage pulse must not exceed 15 percent of one scanning cycle.

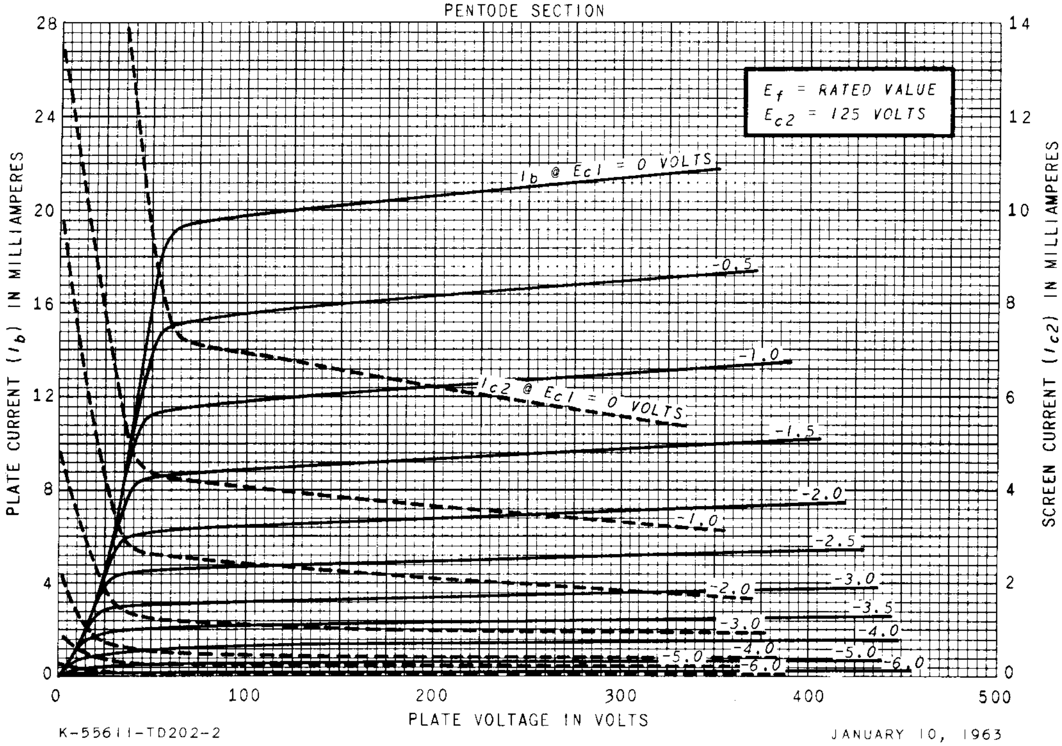
SCREEN RATING CHART

PENTODE SECTION



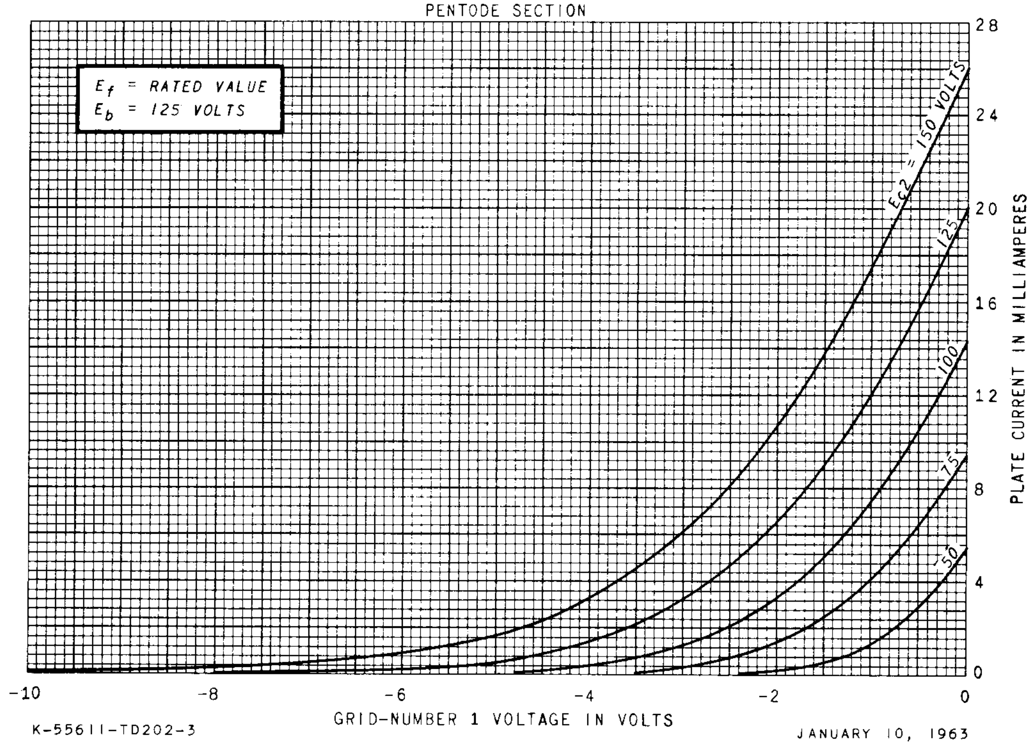
AVERAGE PLATE CHARACTERISTICS

PENTODE SECTION



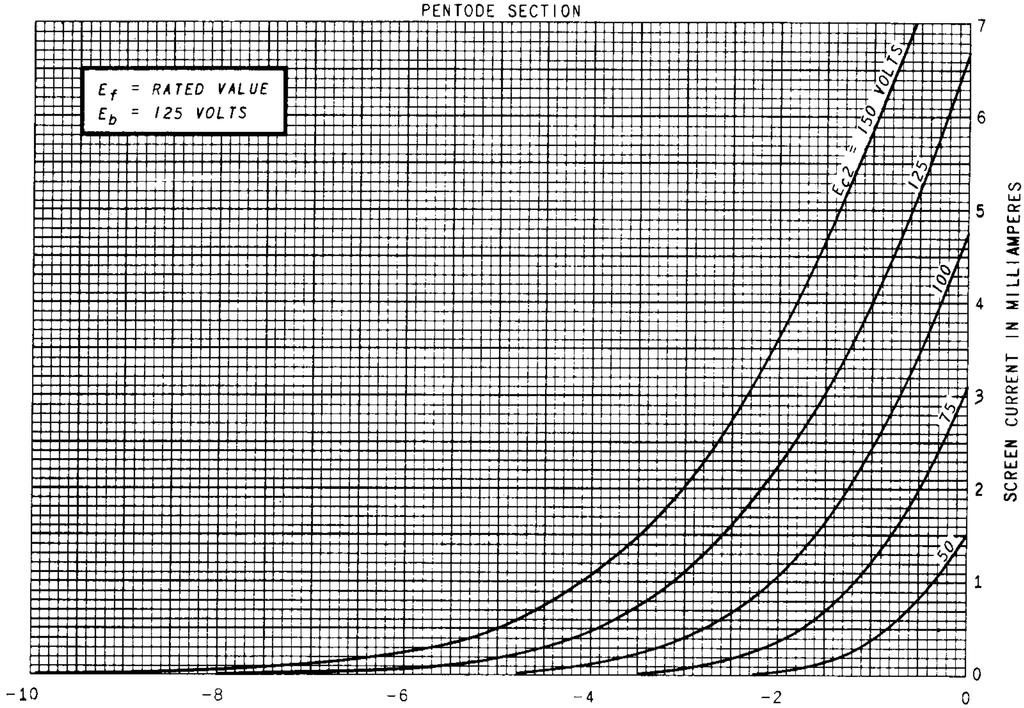
AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION

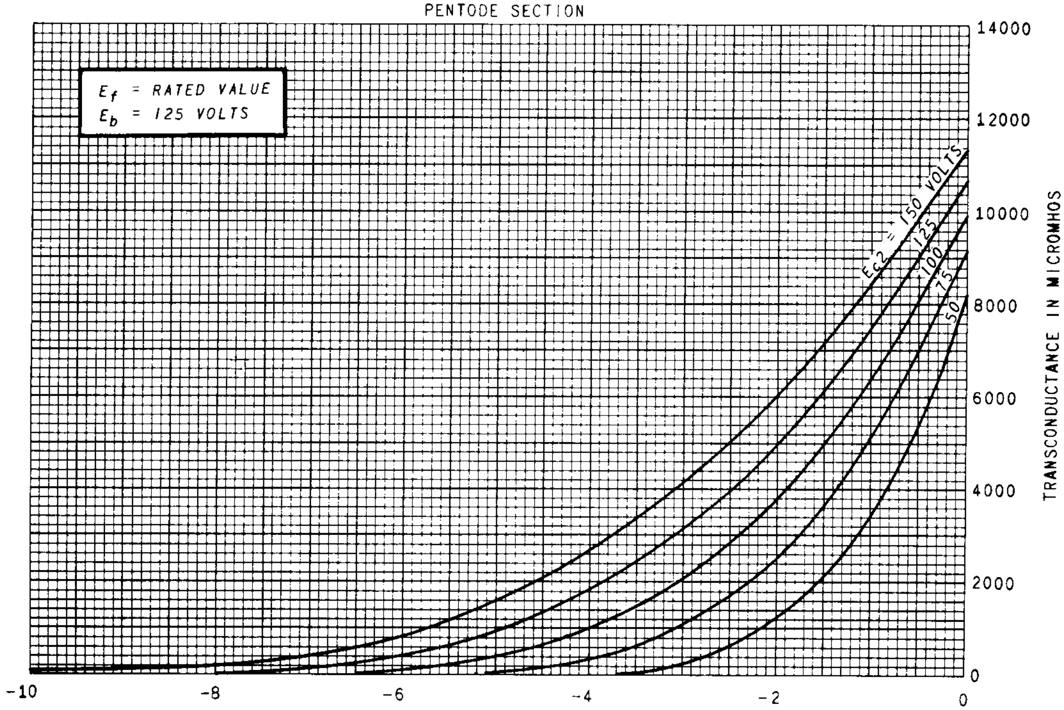


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AVERAGE TRANSFER CHARACTERISTICS

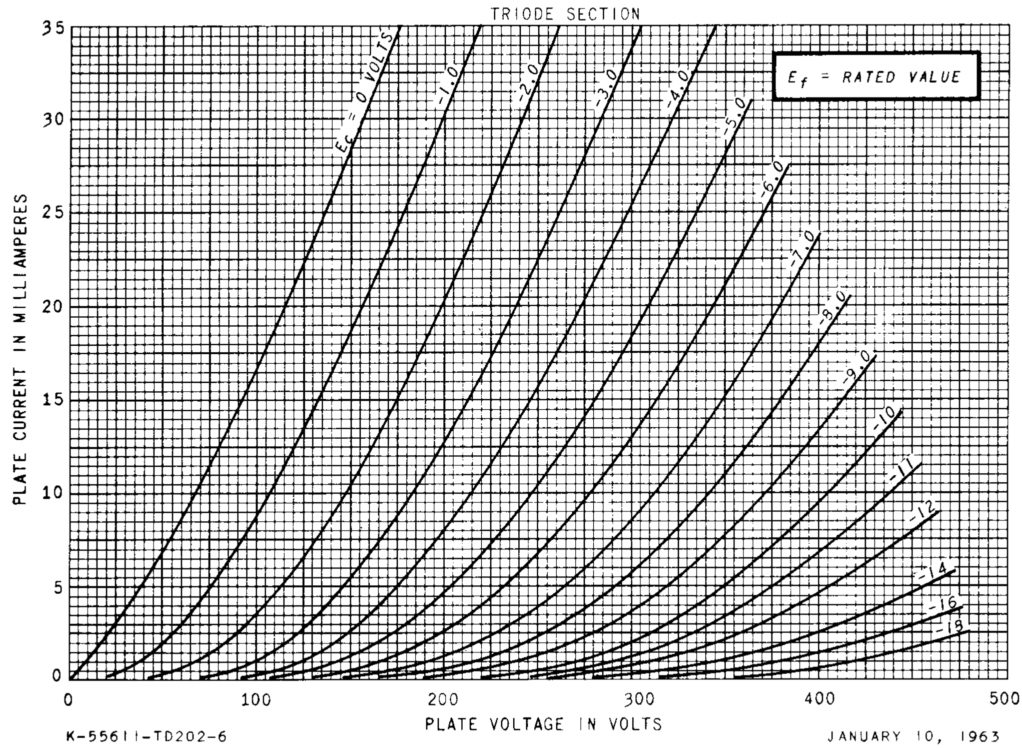
PENTODE SECTION



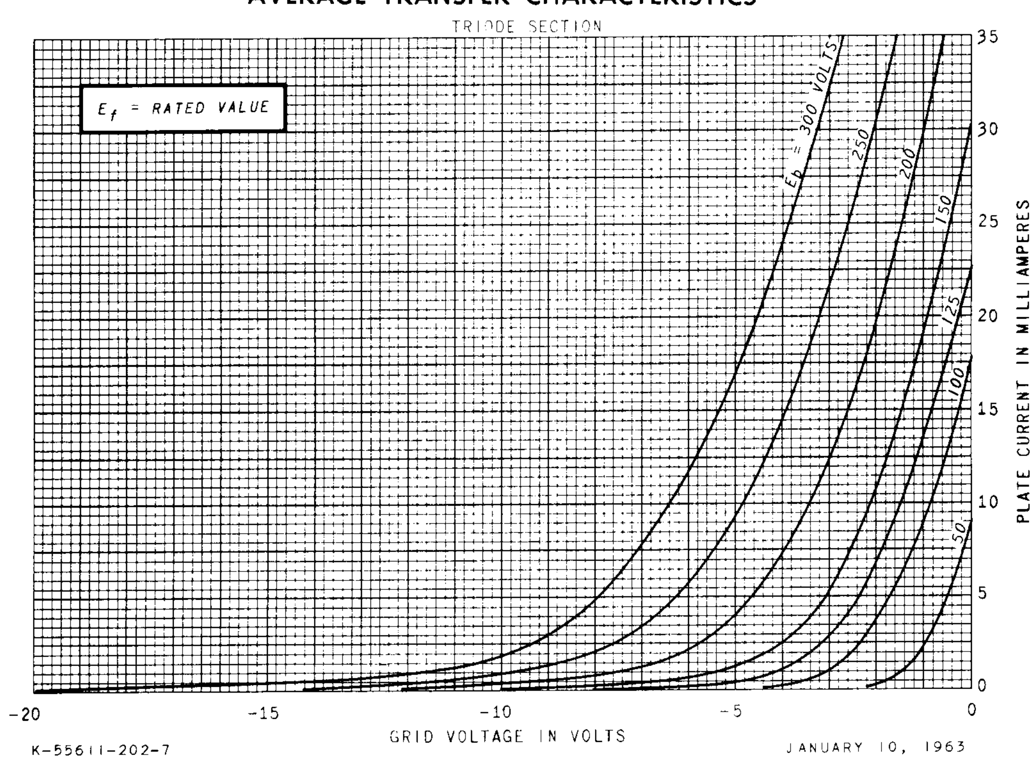
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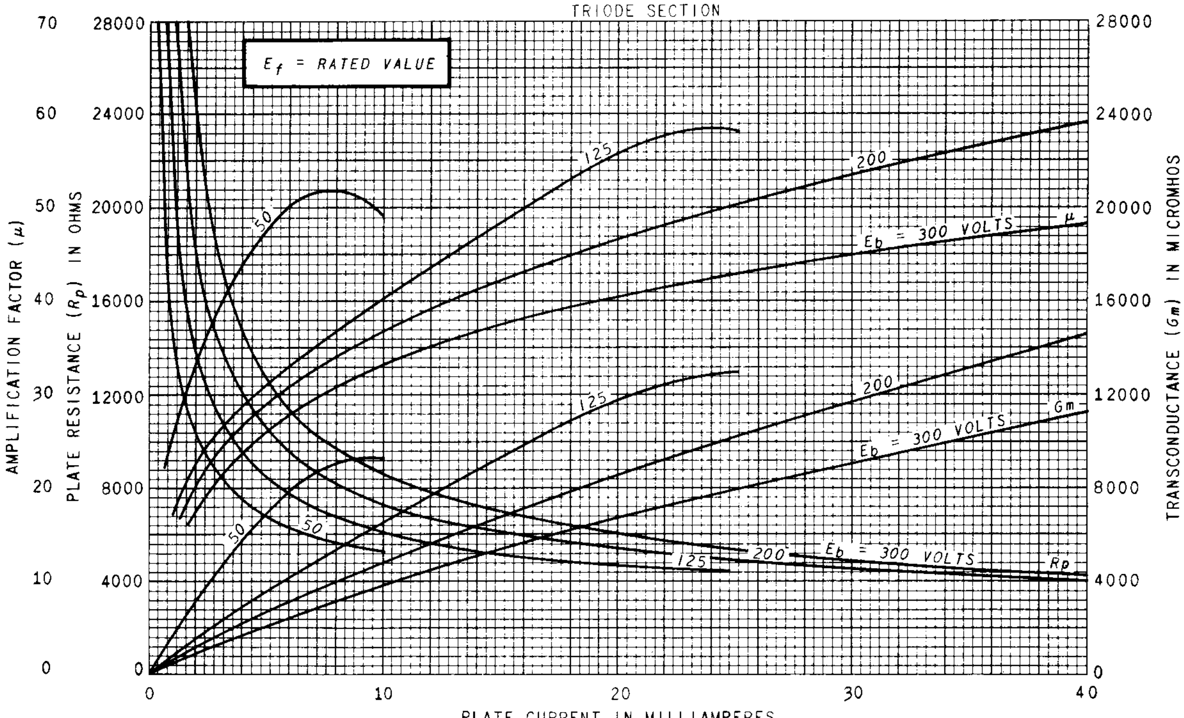
AVERAGE PLATE CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS



AVERAGE CHARACTERISTICS



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JANUARY 10, 1963